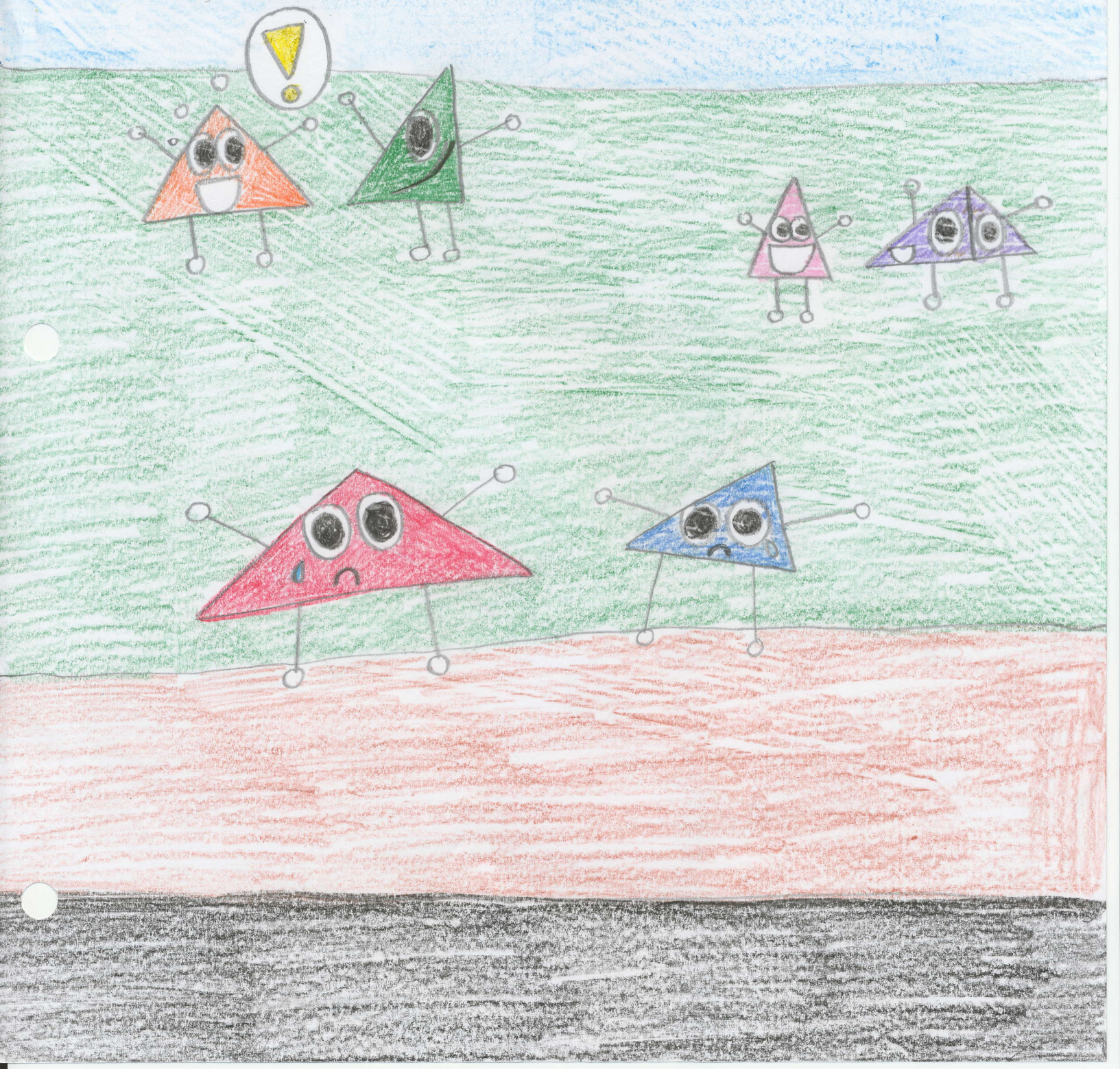
FITTING IN THE CIRCLE.

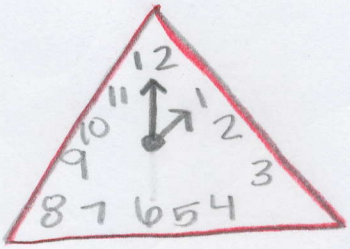
BY:
HANNAH BROWN & KELSEY HENDERSON

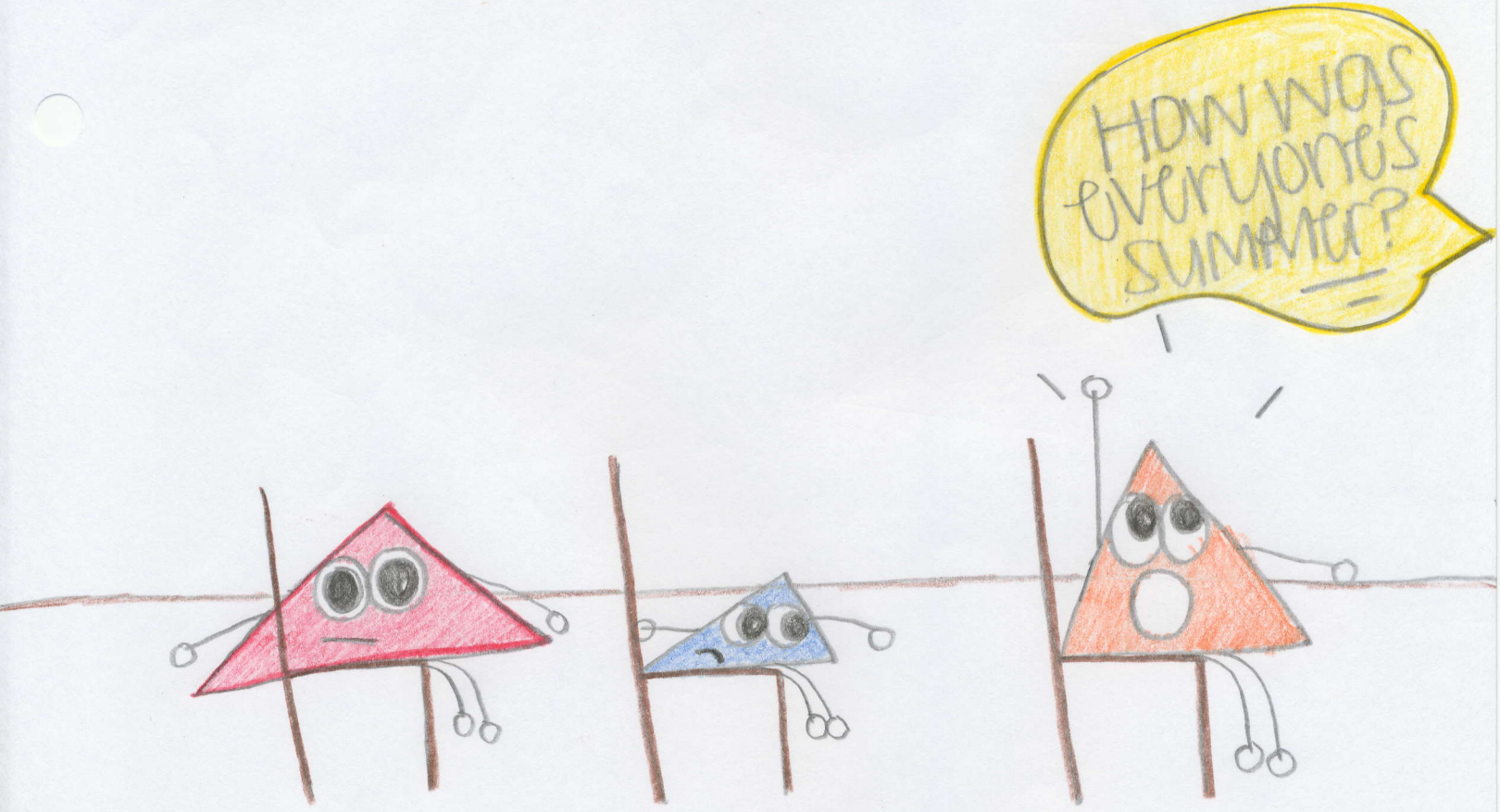
It was the first day of school at Triangle Junior high, where all the best three sided polygons go. Everyone was getting back with old friends and talking about what they did that summer. It seemed that Otis and Alfalfa were the only two triangles who weren't in a big group of friends talking about their summer.



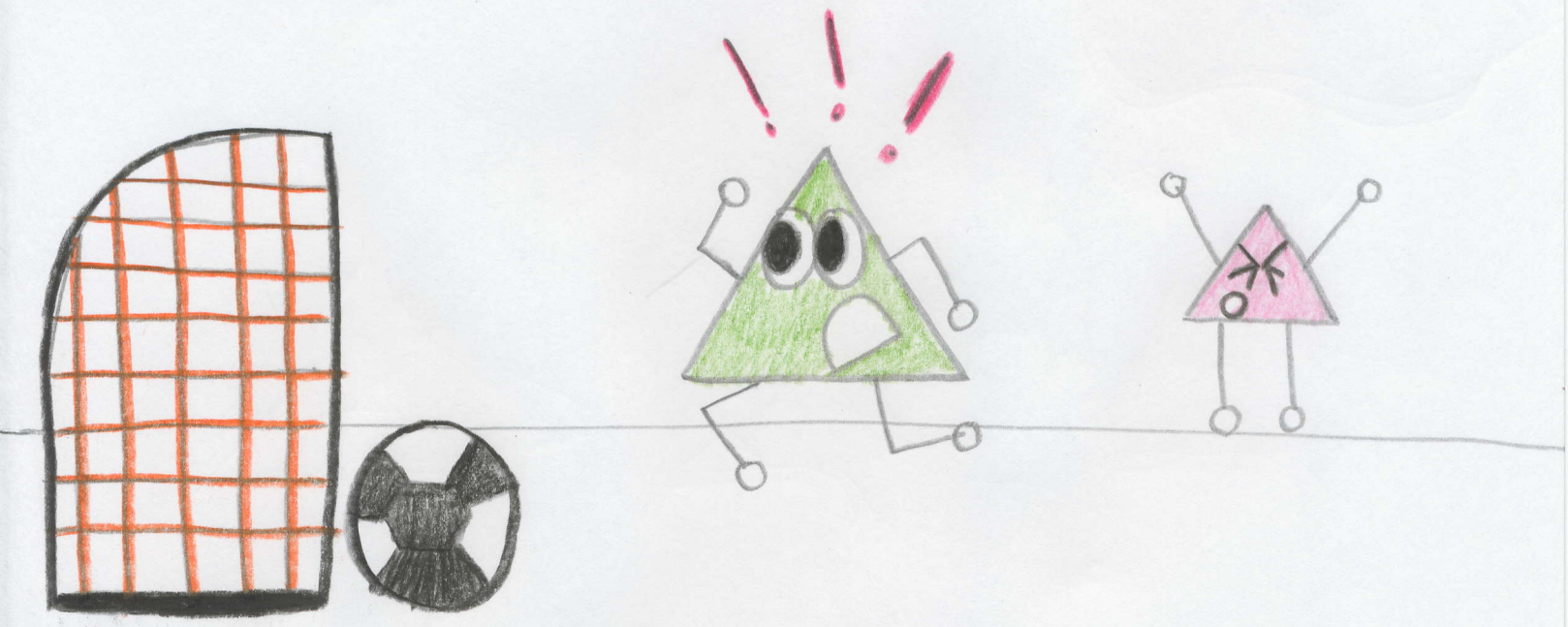
The few first hours of school went by and they still hadn't found anyone to be friends with.

It was time for recess!



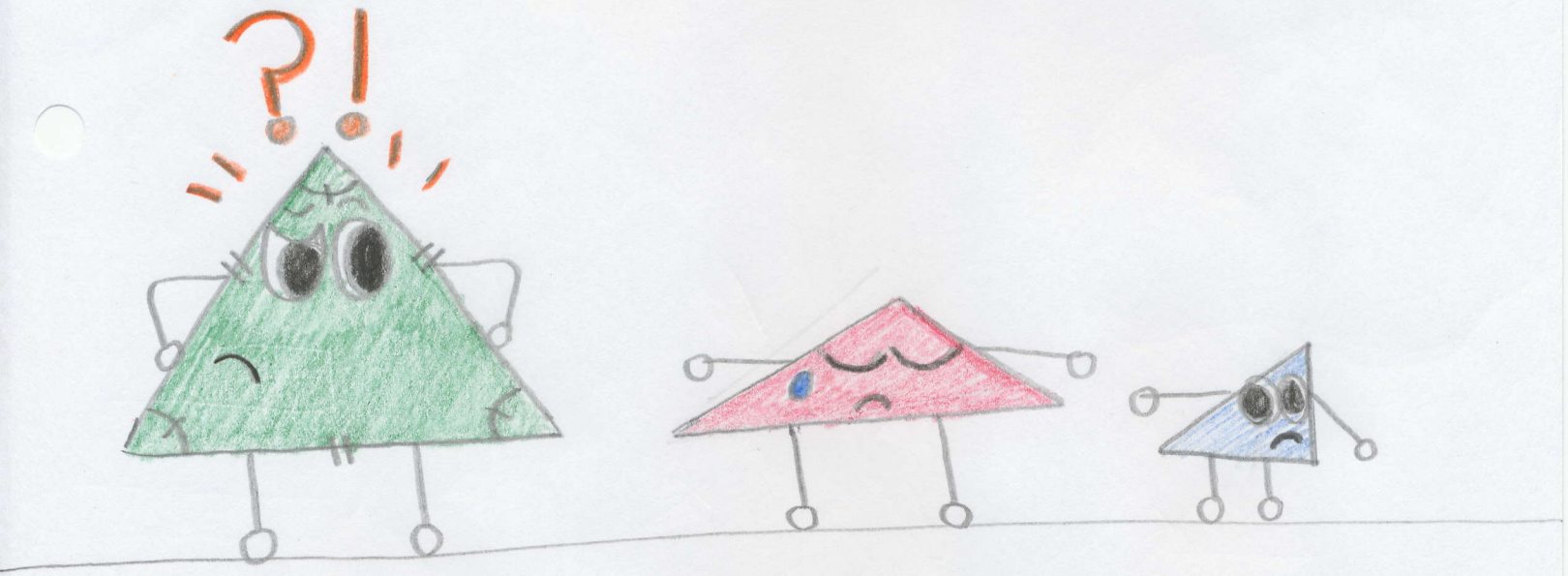


Alfalfa and Otis wanted to see if they could make some friends. First, they went to the soccer field to play with the equilateral triangles.

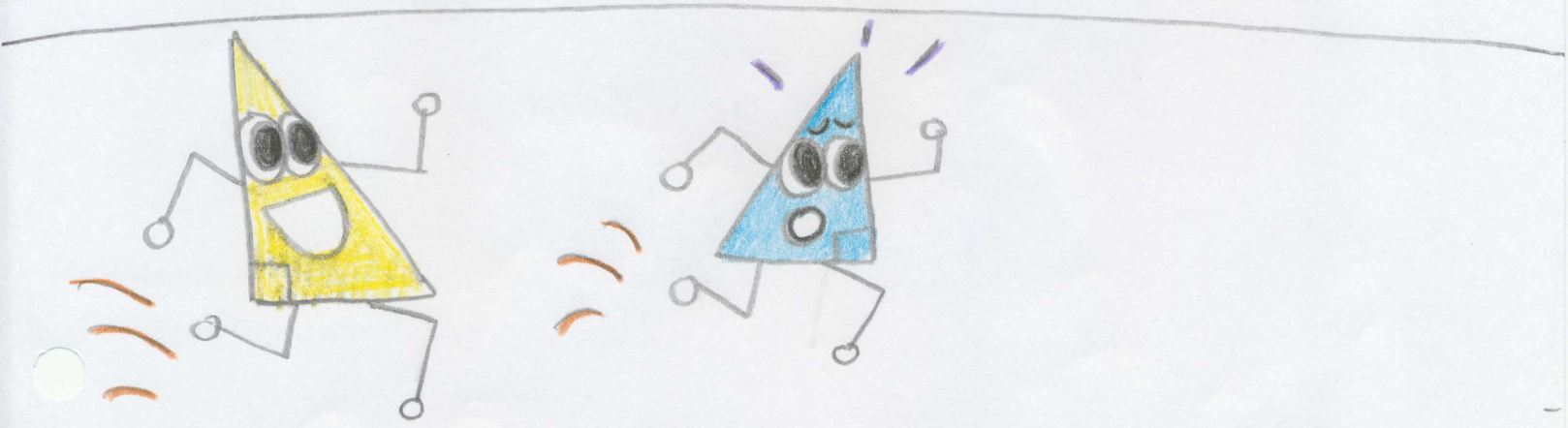


They went up to one of the triangles and asked if they could play. The triangles just looked at them and laughed. One said, "You can only play here if you're an equilateral triangle."

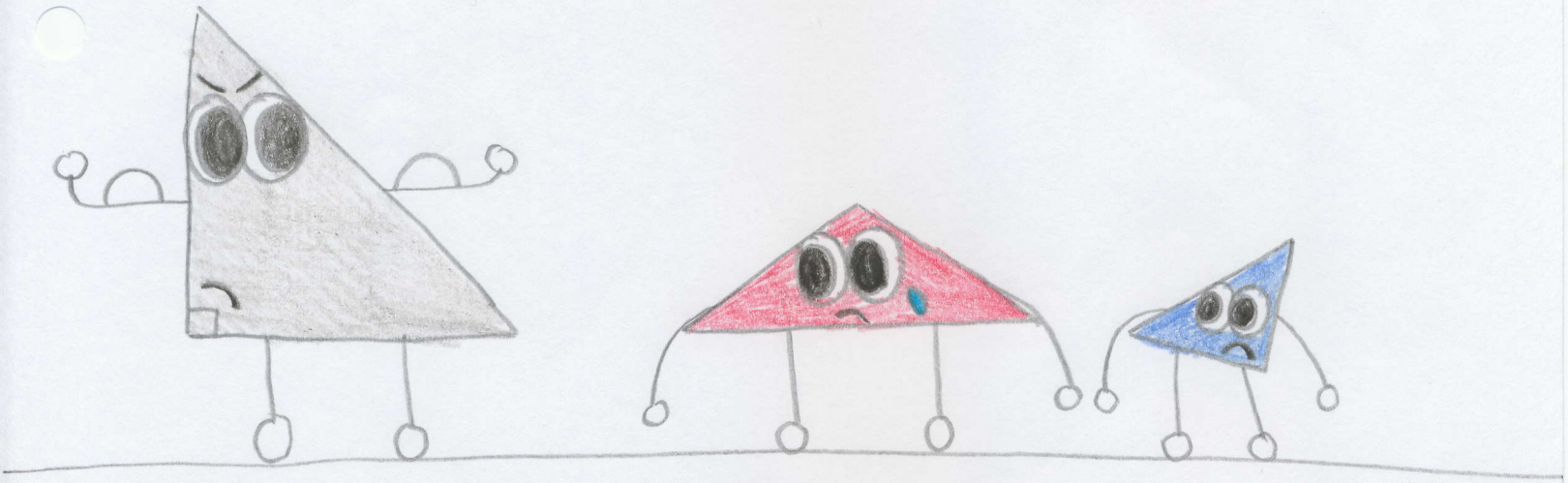
Another explained, "Yeah, that means all of your angles and sides are the same measures."

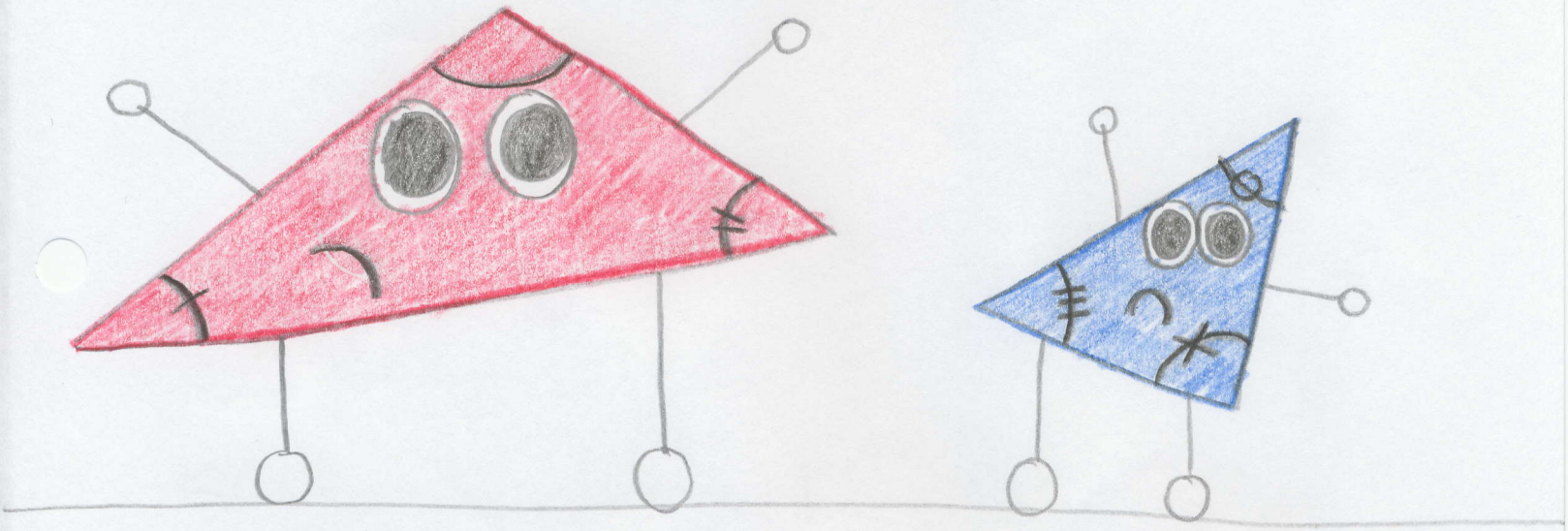


Alfalfa and Otis knew that their sides and angles weren't the same so they decided to see if they could find someone else to play with. On the other side of the playground a bunch of right triangles were playing tag so Alfalfa and Otis went to see if they could play with them.



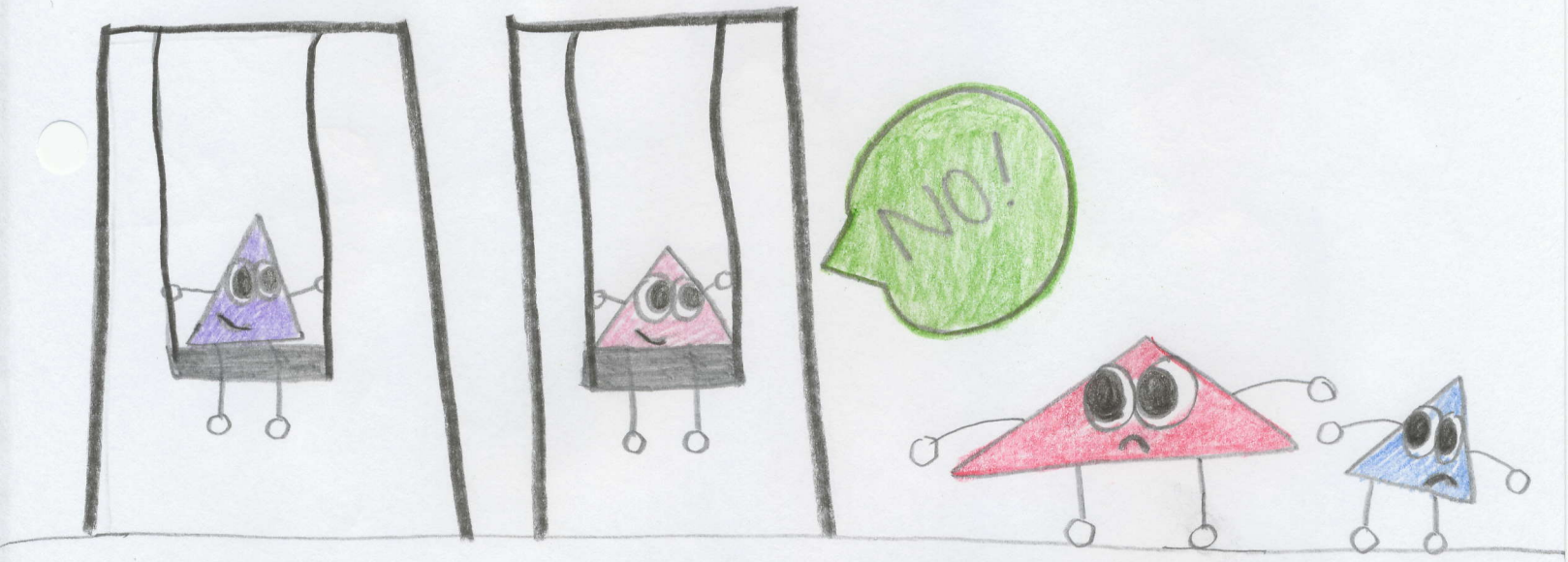
When they got there Otis asked Rafael, the biggest right triangle, if Alfalfa and he could join them. But Rafael just looked at the two and laughed as well. He said, "You guys aren't right triangles. To play with us, one of the measures of your angles has to be 90 degrees because a right angle equals 90 degrees."

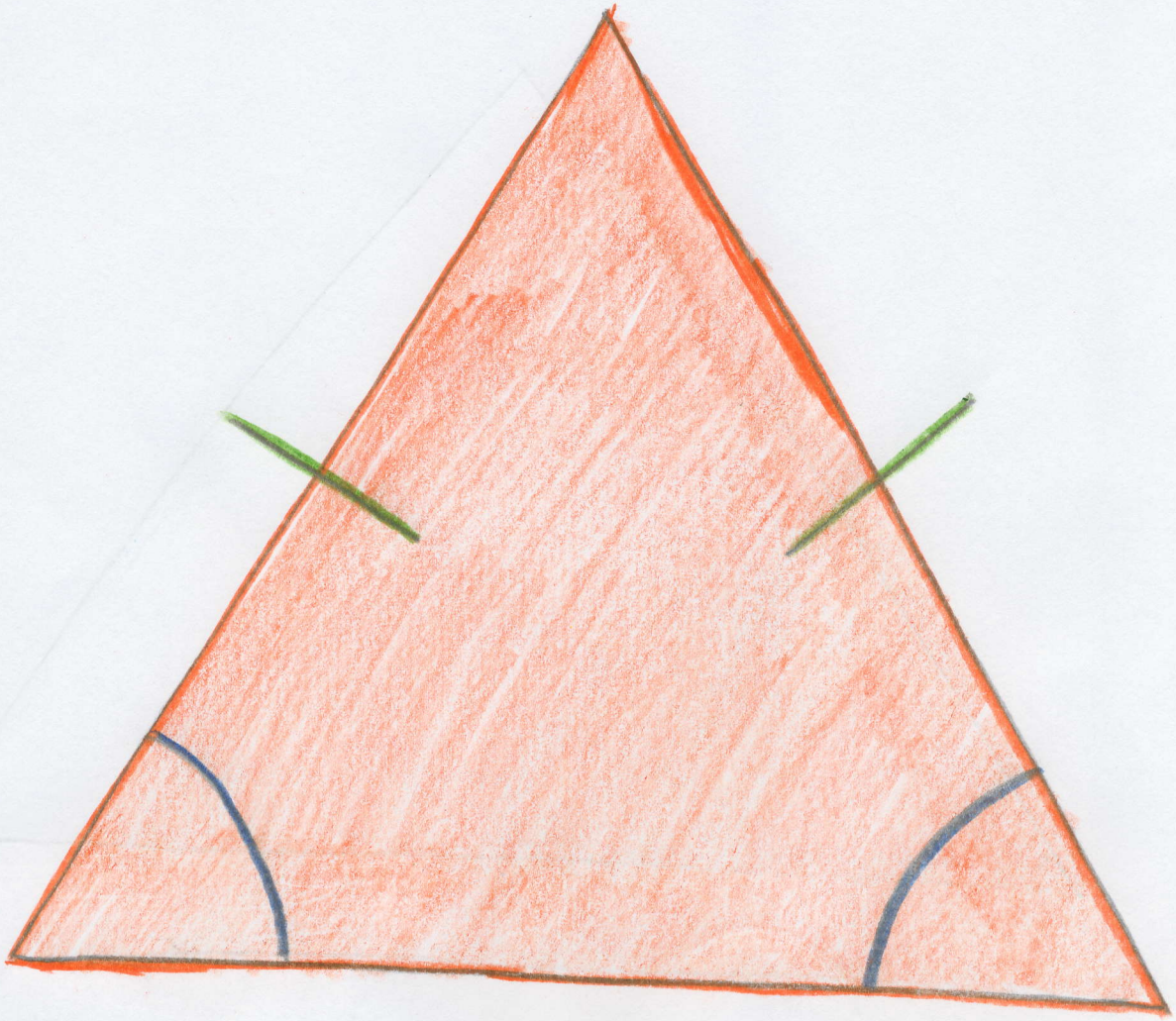




Otis and Alfalfa looked at each other and looked at the measures of their angles. They soon found out that they didn't have a right angle, and decided to go and find a new group to play with.

Over on the swings were a group of isosceles triangles, and Alfalfa and Otis wanted to see if they could play with them. When they got over to the swing set they asked one of the isosceles triangles if the could swing too. He said that the swing set was only for isosceles triangles.

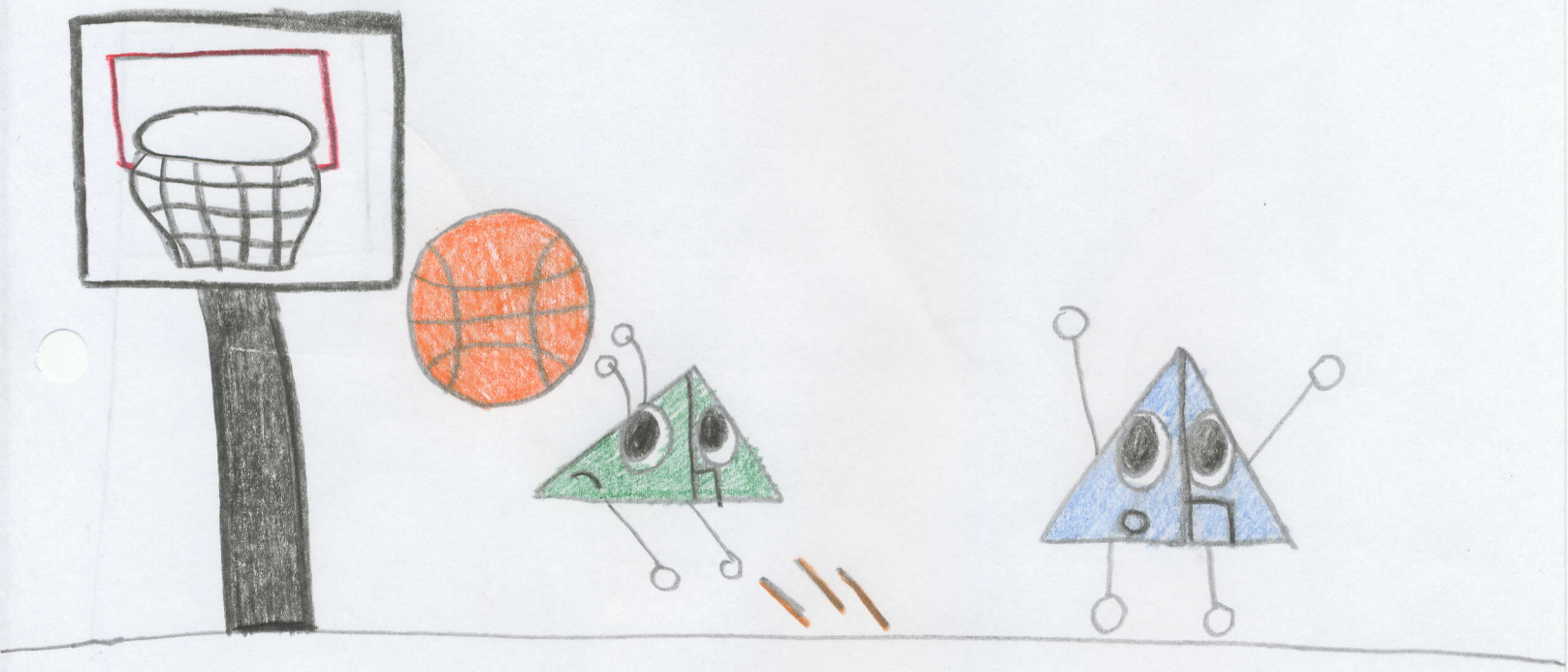




Alfalfa and Otis were confused, they asked, "What's so special about being an isosceles triangle?"

One yelled back, "Both of your legs are congruent, meaning they each have the same measure. Also both of our base angles, the angles formed by the base and an adjacent line, are congruent as well."

Yet another said, "You can only play here if you have a pair of congruent sides, so there."

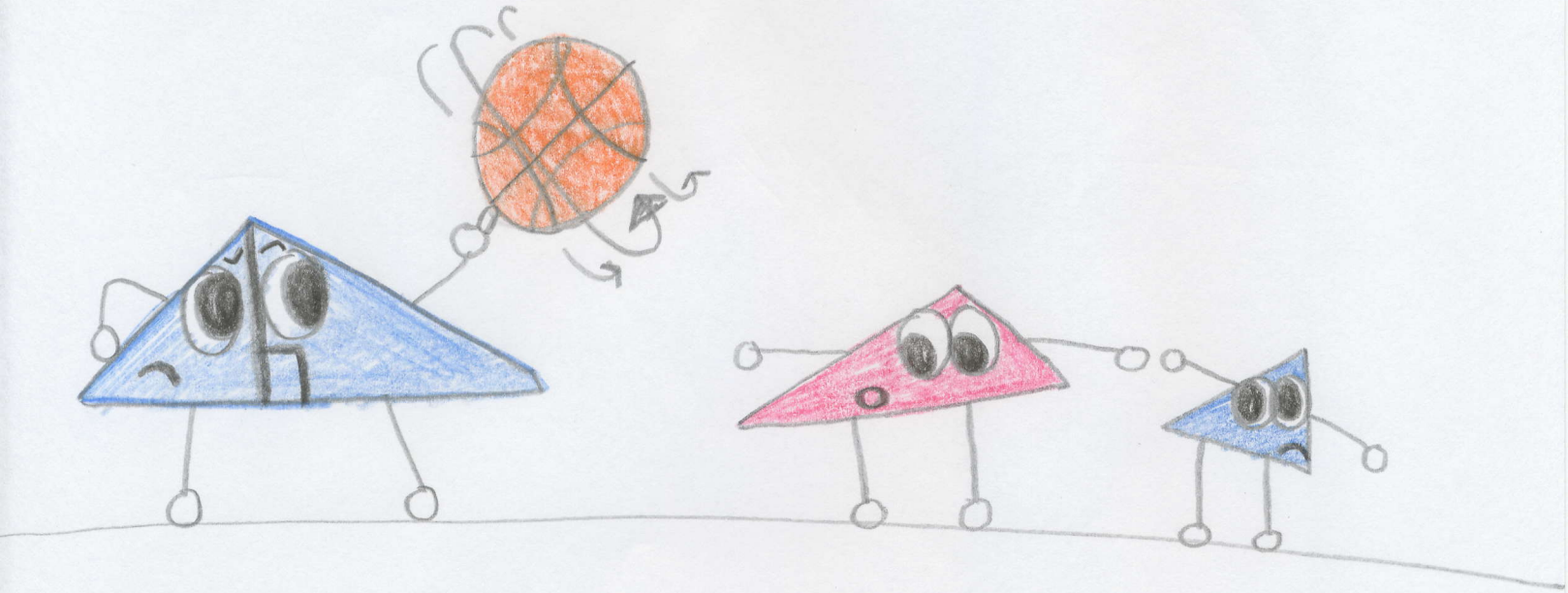


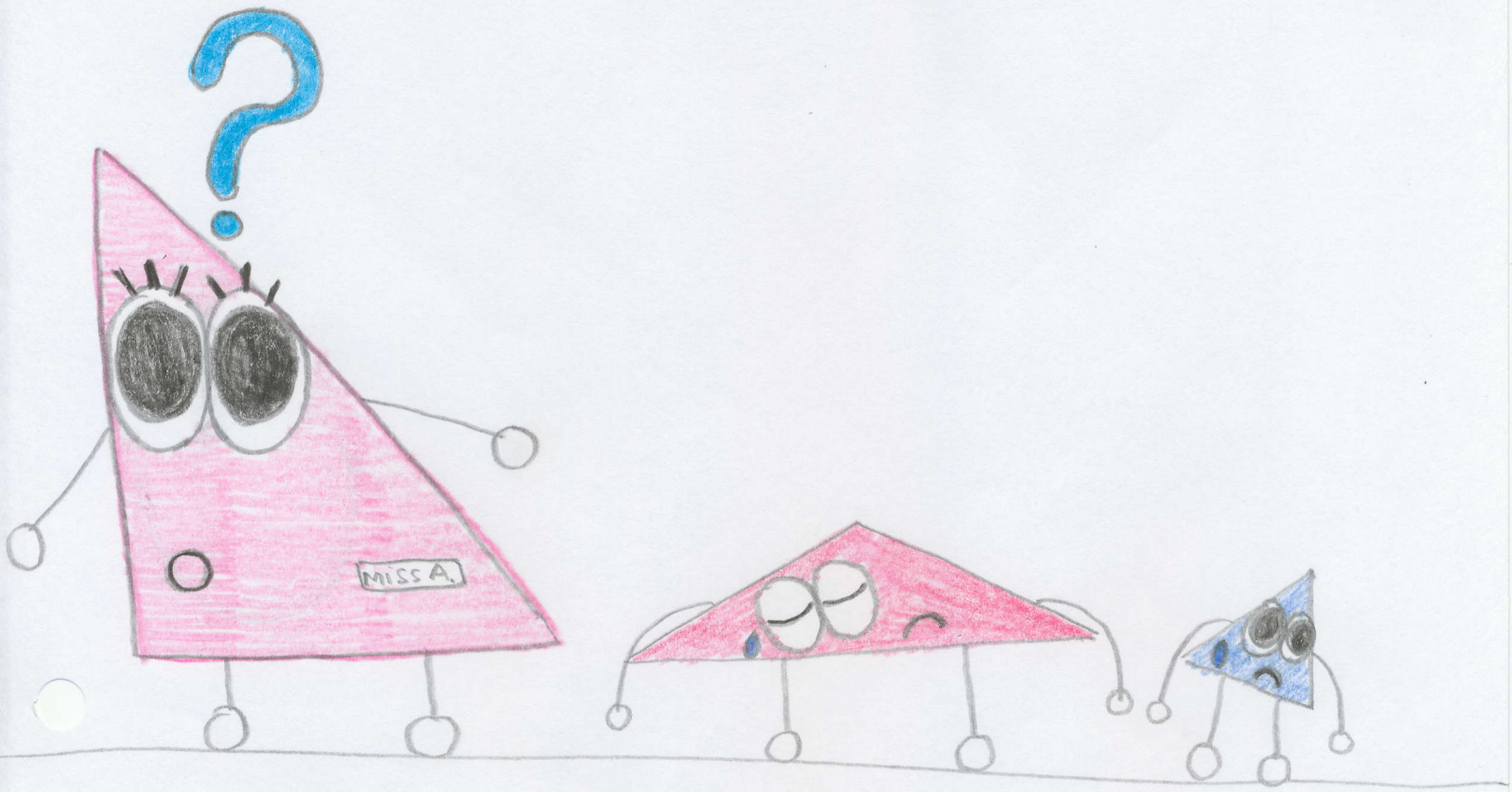
So they went to the final group of triangles playing basketball except these triangles had an extra line either in them or outside connected to one of their vertexes, or corners.

They went over to one of the triangles with the mysterious line and asked to play with them. The triangle replied, "Well do you know how to find your area?"

"No, we don't even know what an area is.", said Alfalfa and Otis.

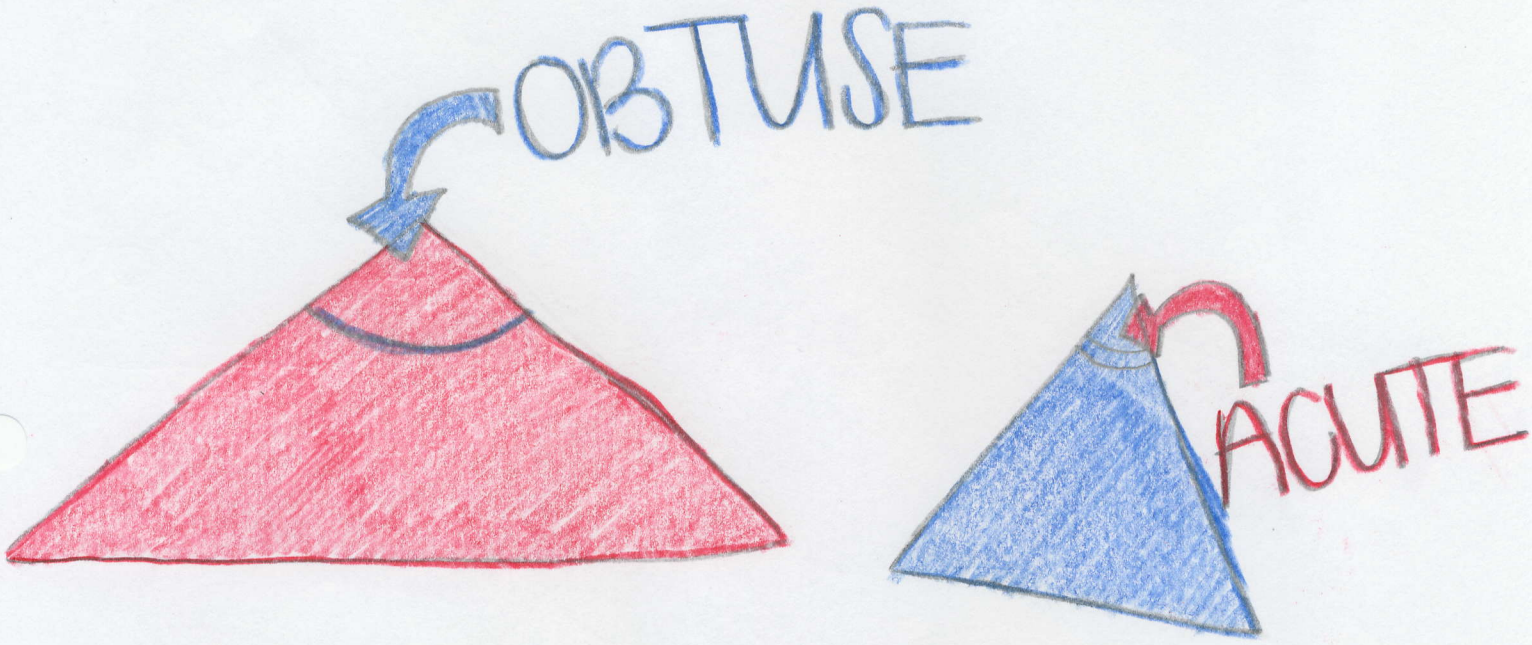
The triangle told them, "The area is the amount of space you take up, and you find it by multiplying this silly line here, which is called an altitude and it extends from a vertex to point perpendicular to the opposite side, by the length of the side the altitude is perpendicular to. Then you divide all of that by two, and there you have it, your area."





Alfalfa and Otis were sad, they didn't know their altitude, they only knew the measures of their sides. Then the bell rang for class to start back up. So they walked into Miss Alexandria's classroom, their heads hanging. Before class started Miss Alexandria asked them what was wrong. The two replied, "We don't have anyone to play with, we're not right triangles, or equilateral triangles or isosceles, and we don't know our altitudes to find our area."

Alfalfa said, "I'm just an acute scalene triangle, none of my angles or sides have the same measure and all my angles are less than 90 degrees." Then Otis said, "I'm just an obtuse scalene triangle, none of my sides and angles are congruent, and one of my angles is greater than 90 degrees."



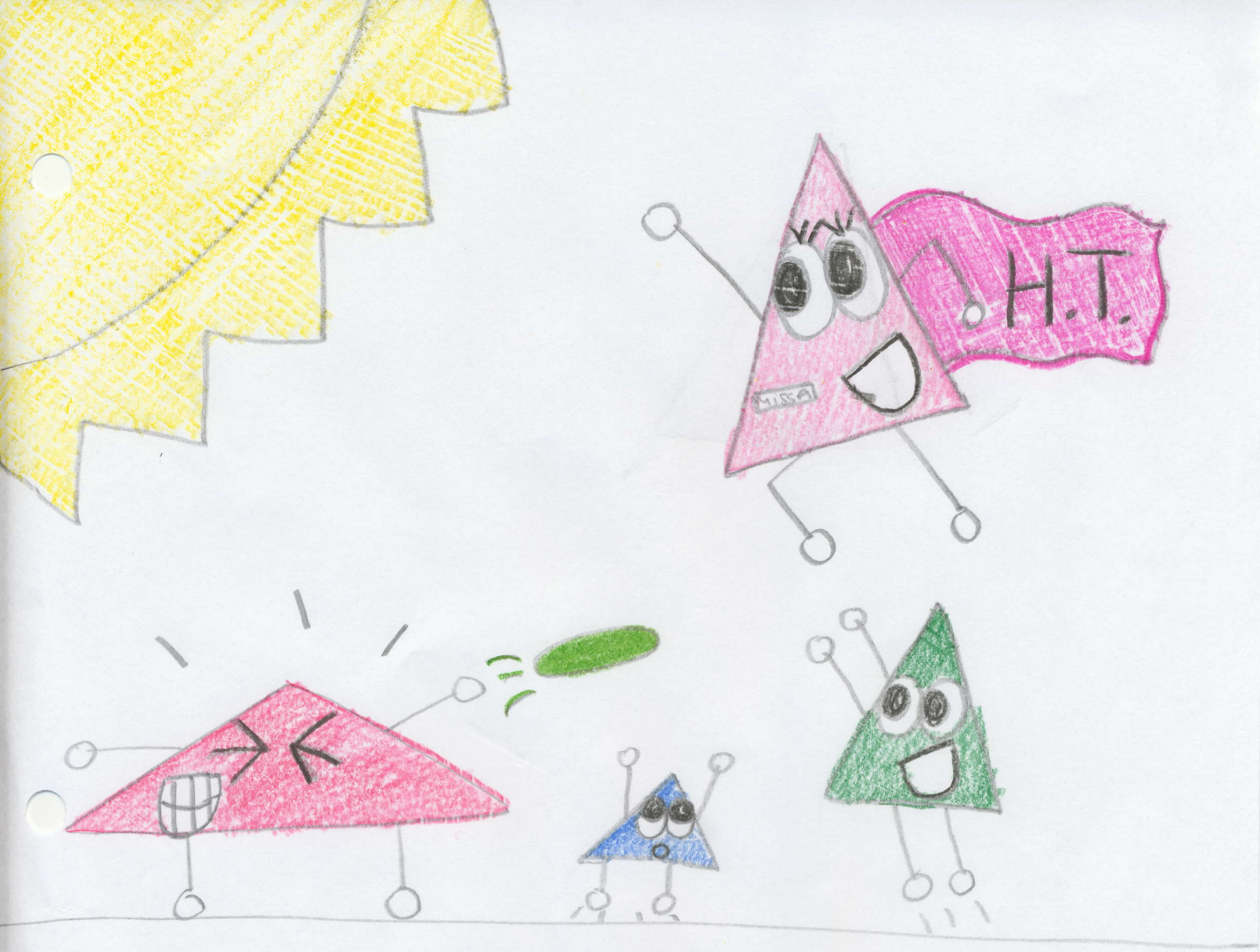
Miss Alexandria looked at the two and asked them if they knew the measures of all their sides. They both said yes. Then Miss Alexandria went on to explain to the two that because they knew there measure there was a special way to find their area.

She said, "All you do is take the square root of the semi perimeter, the sum of all your sides divided by two, times the semi perimeter minus one side, times the semi perimeter minus another side, times the semi perimeter minus the third side, and that's it."

"Really?", the two asked.

"Would I lie to you?", was Miss Alexandria's response.

$$\sqrt{(s-a)(s-b)(s-c)s}$$



"Wow, we never knew that. Thanks Miss Alexandria, you're our hero.", said the two with the utmost gratitude. The next day at recess Alfalfa and Otis didn't feel left out. In fact, they started their own game of Frisbee with all the other triangles who were in the same boat as them. So they went through the rest of the school year knowing they were special and since Miss Alexandria was their decided hero, the decided to call the equation, that Miss Alexandria told them, Hero's theorem.

Q.E.D.

Works Cited

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